Semester: FALL 2020  Units: 4
University of Southern California
School of Architecture
Prerequisite: NONE

ARCH 205aL: ARCHITECTURE FOR ENGINEERS
The process and communication of building design:
Physical building shells, systems for structure,
enclosure, and space ordering.

Instructor/Coordinator: Adjunct Assoc. Professor Mina M. Chow, AIA, NCARB
Schedule: MON/WED 1:00pm-3:50pm  Location: WATTB12, Zoom online/ Blackboard.
Office Hours: M W by appointment. Please note all student texts/emails will be addressed in a timely manner. Please respect time zones for all communication.
email: minachow@usc.edu

This is a foundation studio course in an interdisciplinary program with the School of Engineering that first was established in the 1970’s. The three-year interdisciplinary program is based in the School of Civil and Environmental Engineering Studies. This program will familiarize the student with architecture, landscape architecture, planning, structural, mechanical, and electrical engineering and the related issues that contribute to the built environment for our society. It introduces the process of coordinating all of these aspects for the engineering student.

This course will help the student comprehend the nature of order in our surroundings, and to create an appreciation and understanding of how and why these systems are established. Projects will focus on the intrinsic properties of materials applied in structural and conceptual expression. The primary objective is to expose students to current issues related to design in architecture, and to teach the intrinsic nature of architecture developed through principles based on the design and construction process.

This first course will explore basic principles of 2 and 3 dimensional compositions though a series of design exercises, discussions, and critiques; focusing on the intrinsic properties of materials applied in structural and conceptual expression. Emphasis is placed on design as a creative, conceptually driven, iterative process. Attention is given to theories of context, unity, order, proportion, shape, balance, form, and space as they apply to abstract composition and structural design. Expression of ideas and values present in physical form are explored through observation, analysis, transformation, and synthesis. Students develop and document projects using a variety of means, including model making, REVIT or OTHER software programs, sketching, mechanical drawing, and photography. Project craft and execution (IRL or digitally) are emphasized. In summary, the lectures, discussions and design problems will begin to reveal how architects and design professionals think, and what they must think about when designing a building or a space.

Academic Integrity
USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own. All students are expected to understand and abide by these principles. Scampus Part B contains the Student Conduct Code in Section 10, while the recommended sanctions are located in Section 11: https://policy.usc.edu/scampus-part-b/

Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. Membership in the academic community places a special obligation on all members to preserve an atmosphere conducive to the freedom to teach and to learn. Part of that obligation implies the responsibility of

Mina Chow, AIA, NCARB Adjunct Associate Professor
each member of the USC community to maintain a positive learning environment in which the behavior of any individual does not disrupt the classes of teachers or learners. It is the responsibility of the individual faculty member to determine, maintain and enforce the standards of behavior acceptable to preserving an atmosphere appropriate for teaching and learning. Students will be warned if their behavior is evaluated by the faculty member as disruptive. Sanctions may include a range of responses from immediate removal from class to referral to the appropriate academic unit and/or the Office of Student Judicial Affairs and Community Standards to review pertinent alleged university violations of ethical and behavioral standards. Significant and/or continued violations may result in administrative withdrawal from the class.

**Sustainability:**
In addition, the studio will address the important role architects and engineers direct in the sustainability of our environment. We will discuss the 2030 Challenge in how design should *engage the environment* in a way that dramatically reduces or eliminates the need for fossil fuel and find applications to the design of our structures.

**Diversity, Equity & Inclusion:**
The class supports the discussion of diverse ideas and intend to make the classroom a safe environment to talk about diverse approaches to building better communities. The classroom follows the USC Principles of Community: [https://diversity.usc.edu/usc-principles-of-community/](https://diversity.usc.edu/usc-principles-of-community/)
And the School of Architecture Mission & Vision: [https://arch.usc.edu/diversity-equity-inclusion](https://arch.usc.edu/diversity-equity-inclusion)

For more resources:
SCampus Part D, Section 1: Free Expression and Dissent
[https://policy.usc.edu/scampus-part-d/](https://policy.usc.edu/scampus-part-d/)
USC Campus and Student Affairs
[https://diversity.usc.edu/campus-and-student-affairs-resources/](https://diversity.usc.edu/campus-and-student-affairs-resources/)
DSP and Universal Design for Learning (UDL): [https://dsp.usc.edu/](https://dsp.usc.edu/)
[http://www.udlcenter.org/aboutudl/whatisudl](http://www.udlcenter.org/aboutudl/whatisudl)

**COURSE OBJECTIVES:**

A) Apply two and three-dimensional formal design principles and theories to simple design exercises.

B) Investigate intrinsic properties of materials applied in structural and conceptual expression to create original (IRL) design projects.

C) Develop alternative solutions to a given or self-defined design problem through an iterative design process.

D) Employ fundamental theories of visual perception for spatial unity, dialog, contrast, balance, tension, rhythm, and harmony in creative documentation and representation of design projects.

E) Use research, critical thinking, and analytical skills to discover the cultural values embedded in physical objects and spaces created by a society.

F) Through abstraction and transformation, create designs that express identity and meaning of their subject(s) and/or context(s).
G) Employ ordering principals and systems (i.e.-- proportion, scale, solid/void, figure/ground, balance and symmetry, balance and asymmetry) to organize a design solution that clearly reflects a design concept.

H) Demonstrate mastery of basic presentation craft and organization though verbal, graphic, and model building means.

I) Communicate clearly using verbal, graphic and physical model-making skills, an intentional and comprehensive design concept.

COURSE CONTENT:

Analysis:

1. Research: Students will perform research IRL at libraries and/or use trusted online scholarly portals, and/or investigate primary sources.
2. Observation: The relationship of the whole environment to its parts, especially as related to the structure of building elements.
3. Formal Analysis: Introduction to two and three-dimensional analytical techniques.
4. Contextual Analysis: Study of factors effecting the perception and meaning of environments.
5. Problem Analysis: Investigating constraints and opportunities presented by a variety of design problems.
6. Application: Synthesis of the above critical process into coherent design solutions that creatively address issues revealed through analysis.

Design Principles:

1. Primary Elements of Form: What they are and how they relate to the design of structures.
2. Form Generation: How forms are generated and used in the design process.
3. Context and meaning: The interrelationships between an object, its environment, and meaning.
4. Scale: How size and proportion affect meaning.

Organizational Principles:

1. Proportion: Ancient and modern systems used to organize works of architecture and art. How proportional systems are used to organize designs.
3. Balance and Asymmetry: How balance is achieved between design elements in asymmetrical relationships.
4. Figure/Ground: How figure and ground interact to create and define spatial relationships.
5. Solid/Void: Solid and void interrelationships and their effect on meaning and experience.
Design realization:

1. **Synthesis:** Integration and resolution of disparate and conflicting design issues into clear, well-organized, aesthetically and structurally sound solutions.

COURSE OBJECTIVES WILL BE ACHIEVED THROUGH THE FOLLOWING:

1. Design studio assignments.
2. Discussions, active-learning presentations.
3. Project critiques and reviews
4. Final project.

ASSIGNMENTS/GRADING:

60%  (5) Design Studio Assignments
25%  (1) Final Project
15%  Attendance and participation for studio talks and discussions.

RECOMMENDED DRAWING EQUIPMENT:
Due to the COVID pandemic, please check in advance with retailer websites for best prices. You may also find other deals or use other comparable equipment. All graphic software may be used (ie.—Sketch-Up, ACAD, Revit, etc… and others) BUT clarity and depth will be evaluated equitably.

Blick Art Supplies CONTACT:
Adam Crouse, Western District Sales and Outreach Manager
7301 West Beverly Blvd. Los Angeles, CA 90036
Mobile: 213-819-4417 Fax: 323-978-2832
A.Crouse@dickblick.com | www.dickblick.com

--Drafting board or parallel rule (42” recommended)
--Adjustable triangles (30/60, 45 degrees)
--Architectural & Engineering scales (1/16”, 1/8”, 1/4”, 1/2”, etc… and 1:10, 1:20, 1:30 etc…)
--Drafting leads and mechanical pencils (H, 2H, 3H, F, B, 2B etc…)
--Drafting lead holder
--Sketch pencils and pens
--Eraser(s)
--Eraser shield(s)
--Trace paper (white or buff color)
--Metal straightedge

Students may purchase Clearprint no. 1000 HP vellum paper or mylar—as needed for individual or group project prints.
REFERENCES:
Readings will be from the following texts. Required books may be checked out from our library. For more information, visit USC Libraries OER Guide http://libguides.usc.edu/oer. Some will be provided in advance on: https://blackboard.usc.edu.

REQUIRED:

RECOMMENDED:


CLASS SCHEDULE (SUBJECT TO CHANGE- PLEASE STAY INFORMED):

Week 1

MON
AUG 17
INTRODUCTION & ORIENTATION, REVIEW COURSE HANDOUTS
DISCUSSION: “WHAT is Architecture?” & “FIGURE GROUND”
HANDBOUT: A1_Definition of 2 Squares
HOMEWORK:
--READ Ching, Francis. Form, Space and Order, Chapter 7, p.349 – 423, provided on Blackboard.
--READ Lauer, David and Stephen Tentak. Design Basics, Chapter 2, 3, 4, 5, 6, provided on Blackboard.
--CREATE 4-5 test compositions of “Definition of 2 Squares” @ ½ size (9” x 12”) for class review.

WED
AUG 19
DISCUSSION/EXERCISE: “CONTOUR LINE COMPOSITION”
--REVISE 4-5 test compositions of “Definition of 2 Squares” @ ½ size (9” x 12”) for class review.
--SKETCH pure contour drawings (10 total in sketchbook DUE: Wed 08/26/20).

Week 2

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/Users/empresschow/Documents/USC/USC Classes/USC ARCH 205/USC ARCH 205aL/USC_ARCH 205AL_FA2020/A0_Admin/F20_205aL_Syllabus_08-19-20.docx
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<table>
<thead>
<tr>
<th>Date</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Thursday</th>
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<tbody>
<tr>
<td>AUG 24</td>
<td>REVIEW: “A1: Definition of 2 Squares”</td>
<td>DISCUSSION: “DIAGRAM &amp; ABSTRACTION”</td>
<td>HOMEWORK: Research &amp; Diagramming</td>
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<td>AUG 26</td>
<td>Sketchbook Assignment #1 DUE</td>
<td>CLASS DISCUSSION/ REVIEW: “RESEARCH”</td>
<td>HOMEWORK: Research &amp; Diagramming</td>
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<td>WEEK 3</td>
<td>REVIEW: “A2: Historic Precedent”</td>
<td>DISCUSSION: “PAPER TOWER “</td>
<td>HOMEWORK: Continue development of Protocol Unit(s)</td>
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<td>Create (6) paper studies</td>
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<td>manipulating 8 ½ x 11” paper.</td>
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<td>Start development of Protocol Unit(s)</td>
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<td>AUG 31</td>
<td>REVIEW Paper Tower Research and Study Models</td>
<td>DISCUSSION: “DRAWINGS: ORTHOGRAPHIC PROJECTIONS”</td>
<td>HOMEWORK: Continue development of Protocol Unit(s)</td>
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<td>SEP 2</td>
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**Week 4**

| MON    | LABOR DAY Holiday — NO CLASS! |
| SEP 7  |                  |
| SEP 9  | GROUP CRIT: A3: Paper Tower Protocol Units | WORKSHOP: Plans, Elevations, Sections | HOMEWORK: Continue development of Protocol Unit(s) |
| SEP 14 | INDIV CRITS: A3: Paper Tower Protocol Units | HOMEWORK: Continue development of Protocol Unit(s) | CON’T plan, section, elevation studies. |
| SEP 16 | INDIV CRITS: A3: Paper Tower | HOMEWORK: Continue development of Protocol Unit(s) | CON’T plan, section, elevation studies. |
| SEP 21 | INDIV CRITS: A3: Paper Tower | HOMEWORK: Continue development of Protocol Unit(s) | START Final Model after consultation. |
**RESEARCH REPORT REQUIREMENTS:**

1. Select/Research (3) “shelter” or chair precedents based on strong concept and a relationship to its construction material(s).
2. Describe why you selected each precedent, what are the concept(s) behind it, what are the relationships to the human body and how they manifest in the form, connections and details.
3. 8 ½ x 11” format, Arrange each page in 2 columns. One(1) column for visual images, one (1) column for descriptive text.

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<td>MON</td>
<td>PEER/ INDIV CRITS: A4: Cardboard “Shelter”</td>
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<td>SEP 28</td>
<td>REVIEW READING/ LECTURE: “Cardboard Shelter/Partition”</td>
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<td>Yom Kippur</td>
<td>HOMEWORK: “Cardboard Shelter or Chair” Study models</td>
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<td>WED</td>
<td>PEER/ INDIV CRITS: A4: Cardboard “Shelter”</td>
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<td>SEP 30</td>
<td>HOMEWORK: “Cardboard Shelter or Chair” Study models</td>
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<tr>
<td>MON</td>
<td>PEER/ INDIV CRITS: A4: Cardboard “Shelter”</td>
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<tr>
<td>OCT 5</td>
<td>HOMEWORK: “Cardboard Shelter or Chair” Study models/ Layout drawings</td>
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<td>WED</td>
<td>DRAWINGS A4: Cardboard “Shelter”</td>
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<tr>
<td>OCT 7</td>
<td>HOMEWORK: Final Drawings/ Start Construction</td>
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<th>Week 9</th>
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<tr>
<td>MON</td>
<td>FINAL DETAILS A4: Cardboard “Shelter”</td>
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<tr>
<td>OCT 12</td>
<td>HOMEWORK: Final Drawings/ Complete Construction</td>
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<td>WED</td>
<td>REVIEW: A4: Cardboard “Shelter” DUE</td>
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<td>OCT 14</td>
<td>HANDOUT: A5: Historic Precedents</td>
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<tr>
<td>MON</td>
<td>Historic Precedents #5</td>
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<td>OCT 19</td>
<td>HOMEWORK:</td>
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<td>Historic Precedents #5</td>
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<td>OCT 21</td>
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<td>Historic Precedents #5</td>
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<td>OCT 26</td>
<td>HOMEWORK:</td>
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<td>WED</td>
<td>REVIEW: “Historic Precedents #5” DUE</td>
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<td>OCT 28</td>
<td>HANDOUT: “A6: Phenomenological Space” (Capture a phenomenon.)</td>
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<td>DISCUSSION: “PHENOMENA VS. MATERIAL”</td>
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<td>HOMEWORK: 1. RESEARCH phenomena/precedents, 2. SKETCH ideas</td>
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<th>Week 12</th>
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<tr>
<td>MON</td>
<td>Phenomenological Garden RESEARCH DUE</td>
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<td>NOV 2</td>
<td>HOMEWORK: 1. Select and make site model</td>
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<td>WED</td>
<td>Phenomenological Space: Peer Evaluations</td>
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<td>NOV 4</td>
<td>HOMEWORK: 1. Study models and sketches.</td>
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<td>Week 13</td>
<td>Phenomenological Space STUDIES: ¼&quot; sketches and ½&quot; models</td>
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<td>NOV 9</td>
<td>WED</td>
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<td>NOV 11</td>
<td>Phenomenological Space STUDIES: ¼&quot; sketches and ½&quot; models</td>
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<td>HOMEWORK: Continue development of 4 connection details. Start final 3D final construction.</td>
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<td>NOV 13</td>
<td>LAST DAY OF CLASSES</td>
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<td>Week 14</td>
<td>STUDY WEEK: Phenomenological Space</td>
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<td>MON</td>
<td>STUDY WEEK: Phenomenological Space</td>
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<td>NOV 16</td>
<td>Individual Zoom Consultations &amp; Peer Evaluations</td>
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<td>WED</td>
<td>STUDY WEEK: Phenomenological Space</td>
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<td>NOV 18</td>
<td>Individual Zoom Consultations &amp; Peer Evaluations</td>
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<td>Week 15</td>
<td>FINAL REVIEW: “Phenomenological Space”</td>
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<td>MON</td>
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<td>NOV 23</td>
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<td>NOV 24</td>
<td>PORTFOLIO DUE @ 5:00PM</td>
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<td>NOV 25 -</td>
<td>WINTER RECESS</td>
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**Mina Chow, AIA, NCARB Adjunct Associate Professor**

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